**Amendments to the Claims:**

Please amend claims 1-6 and 8-16, and cancel claim 7 without prejudice or disclaimer, such that the pending claims read in accordance with the following listing of claims:

1. (Currently amended) A method ~~of pre-equalizing a transmission characteristic of a signal processing circuitry, said method~~ comprising:

~~a)~~ obtaining a difference between an output signal of ~~said~~ a signal processing circuitry and an input signal of a pre-equalizing function, wherein said input signal is filtered by said pre-equalizing function and the output signal of said pre-equalizing function is input to said signal processing circuitry;

~~b)~~ calculating an approximation of the ~~approximating a~~ gradient of the expectation of the square of said difference based on said obtained difference and an approximation of said transmission characteristic; and

~~c)~~ updating control values of said pre-equalizing function based on said approximated gradient,

wherein said transmission characteristic of said signal processing circuitry is approximated as a delay function.

2. (Currently amended) ~~A~~ The method according to claim 1, wherein said approximating ~~step~~ comprises ~~the step of~~ calculating an approximation of a least mean square gradient vector of said difference.

3. (Currently amended) ~~A~~ The method according to claim 2, wherein said gradient vector is calculated from a partial differential equation of a system cost function.

4. (Currently amended) ~~A~~ The method according to claim 1, wherein said difference is obtained by comparing signal envelopes of said output and input signals.

5. (Currently amended) ~~A~~ The method according to claim 4, wherein said input signal is a digital signal and said output signal is an analog signal.

6. (Previously amended) ~~A~~ The method according to claim 1, wherein said control values are coefficients of an adaptive digital filter.

7. Cancelled.

8. (Currently amended) ~~A~~ The method according to claim 1 ~~7~~, wherein the delay of said delay function corresponds to the position of the maximum analog filter peak of said transmission characteristic.

9. (Currently amended) ~~A~~ The method according to claim 8, wherein said gradient vector is calculated using the following equation:

$$\nabla\{E\} = -2e[k] \cdot \underline{d}[k - \tau],$$

wherein

$\nabla\{E\}$ denotes said gradient vector,

$e[k]$ denotes said obtained difference, and

$\underline{d}[k - \tau]$ denotes a vector representation of said input signal assessed by said delay approximation of said transmission characteristic.

10. (Currently amended) ~~A~~ The method according to claim 9, wherein filter coefficients are updated in said updating ~~step~~ based on the following equation:

$$w[k + 1] = w[k] + \mu e[k] \cdot d[k - \tau],$$

wherein

$w[k + 1]$ denotes a vector representation of updated filter coefficients,

$w[k]$ denotes a vector representation of current filter coefficients, and

$\mu$ denotes a predetermined proportionality factor.

11. (Currently amended) An apparatus ~~for pre-equalizing a transmission characteristic of a signal processing circuitry, said apparatus~~ comprising:

~~a)~~ a comparison circuit for obtaining a difference between an output signal of ~~said~~ a signal processing circuitry and an input signal of a pre-equalizer,

wherein said input signal is filtered by said pre-equalizer and the output signal of said pre-equalizer is input to said signal processing circuitry;

~~b)~~ an approximation circuit for calculating an approximation ~~approximating a~~ of the gradient of the expectation of the square of said difference based on said obtained difference and an approximation of said transmission characteristic; and

~~c)~~ an updating circuit for obtaining control values supplied to said pre-equalizer, based on said approximated gradient,

wherein said approximation circuit is configured to approximate said transmission characteristic as a delay function.

12. (Currently amended) ~~An~~ The apparatus according to claim 11, wherein said comparison ~~circuit~~ circuitry is configured ~~arranged~~ to compare said input and output signals based on their envelopes.

13. (Currently amended) ~~An~~ The apparatus according to claim 11, wherein said approximation circuit is configured ~~arranged~~ to ~~approximate said transmission characteristic as a delay function and to~~ approximate said gradient by using a least mean square approximation function.

14. (Currently amended) ~~An~~ The apparatus according to claim 11, wherein said signal processing circuitry is a direct conversion or heterodyne transmitter architecture.

15. (Currently amended) ~~An~~ The apparatus according to claim 11, wherein said apparatus comprises a digital pre-equalizer.

16. (Currently amended) An apparatus ~~for pre-equalizing a transmission characteristic of a signal processing circuitry, said apparatus~~ comprising:

~~a)~~ comparing means for obtaining a difference between an output signal of said signal processing circuitry and an input signal of a pre-equalizing means,

wherein said input signal is filtered by said pre-equalizing means and the output signal of said pre-equalizing means is input to said signal processing circuit;

~~b)~~ ~~approximating~~ approximation means for calculating an ~~approximating~~ approximation of the ~~a~~ gradient of the expectation of the square of said difference based on said obtained difference and an approximation of said transmission characteristic; and

~~c)~~ updating means for obtaining control values supplied to said pre-equalizing means, based on said approximated gradient,

wherein said approximation means are configured to approximate said transmission characteristic as a delay function.